

We claim:

1. A process for coating a continuous length of material comprising the steps of:  
applying tension to a portion of said continuous length of material;  
applying an electron-beam curable coating to the portion of said material under  
5                    tension; and  
exposing the coated portion of said material to an electron beam to cure the coating  
applied thereon.
2. A process for coating a continuous length of material comprising the steps of:  
applying tension to a portion of said continuous length of material;  
10                    advancing the portion of said continuous length of material under tension through  
a coating system;  
applying an electron beam curable coating to the portion of said material under  
tension; and  
exposing the coated portion of said material to an electron beam to cure the coating  
15                    applied thereon.
3. The process as claimed in claim 1 wherein said material is steel sheet.
4. The process as claimed in claim 1 wherein said material is steel tube.
5. The process as claimed in claim 1 wherein said material is steel cable.
6. The process as claimed in claim 1 wherein said material is non-metallic tube.
- 20    7. The process as claimed in claim 1 wherein said material is non-metallic cable.
8. The process as claimed in claim 1 wherein the step of applying a coating to said

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material is further comprised of the following steps;

washing the portion of said material under tension;

rinsing the portion of said material under tension;

drying the portion of said material under tension; and

5       applying an electron beam curable coating to the portion of said material under  
tension.

9. The process as claimed in claim 8 wherein the step of applying a coating to said  
material further comprises applying a sealant to the portion of said material under  
tension.

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10   10. A method for producing coated metal tube comprising:  
supplying a continuous length of sheet metal;  
forming said continuous length of sheet metal into a continuous length of tube;  
sizing said continuous length of tube to a predetermined diameter;  
coating said continuous length of tube with an electron beam curable coating;  
15   curing said continuous length of tube by exposing said length of tube to a plurality  
of electron beam emitters arranged in a predetermined pattern;  
routing said continuous length of tube through a pull-out mill whereby a tensile force  
is maintained on said continuous length of tube; and,  
cutting said continuous length of tube into a plurality of discrete lengths.

20   11. The method of producing coated metal tube of claim 10 wherein said coating step  
comprises:

washing said continuous length of tube;

rinsing said continuous length of tube;

drying said continuous length of tube; and

applying an electron beam curable coating to said continuous length of tube.

- 5 12. The method of producing coated metal tube of claim 11 wherein said coating step further comprises applying a sealant to said continuous length of tube.

13. A method for producing coated metal tube comprising:

supplying a continuous length of sheet metal;

forming said continuous length of sheet metal into a continuous length of tube;

10 sizing said continuous length of tube to a predetermined diameter;

coating said continuous length of tube with an ultraviolet light curable coating;

curing said continuous length of tube by exposing said length of tube to a plurality of ultraviolet light emitting lamps arranged in a predetermined pattern and;

15 routing said continuous length of tube through a pull-out mill whereby a tensile force is maintained on said continuous length of tube.

14. The method of producing coated metal tube of claim 13 wherein said coating step comprises:

washing said continuous length of tube;

rinsing said continuous length of tube;

20 drying said continuous length of tube; and

applying an ultraviolet light curable coating to said continuous length of tube.

15. The method of producing coated metal tube of claim 14 wherein said coating step further comprises applying a sealant to said continuous length of tube.

16. A method for producing coated metal tube comprising:

supplying a continuous length of sheet metal;

5 forming said continuous length of sheet metal into a continuous length of tube;

sizing said continuous length of tube to a predetermined size;

coating said continuous length of tube with a coating capable of being cured by either ultraviolet light or electron beam emission;

10 curing said continuous length of tube by exposing said length of tube to electron beam radiation and ultraviolet light; and

routing said continuous length of tube through a pull-out mill whereby a tensile force is maintained on a portion of said continuous length of tube being coated and cured.

17. A system for producing metal tube from a continuous sheet of metal comprising;

15 a forming mill for shaping said continuous sheet of metal into a continuous length of metal tube;

a sizing mill for shaping said continuous metal tube into a predetermined diameter;

20 a coating system for applying to said continuous length of metal tube a coating capable of being cured by exposure to an electron beam, said coating system having a plurality of electron beam emitters arranged to provide complete curing of said electron beam curable coating; and

a pull-out mill for providing a tensile force on said continuous length of tube  
through said coating system.

18. A system for producing metal tube from a continuous sheet of metal comprising;  
a forming mill for shaping said continuous sheet of metal into a continuous length  
of metal tube;  
a sizing mill for shaping said continuous length of metal tube into a predetermined  
size;  
a coating system having a wash and rinse stage for cleaning said continuous length  
of metal tube, a dryer stage for drying said tube, a coating stage for applying  
to said continuous length of metal tube a coating capable of being cured by  
exposure to an electron beam, said coating system further having a plurality  
of electron beam emitters arranged to provide complete curing of said  
electron beam curable coating; and  
a pull-out mill for providing a tensile force on said continuous length of tube  
through said coating system.

19. A system for producing metal tube from a continuous sheet of metal as claimed in claim  
18 wherein said coating system further comprises a sealer stage for applying a sealant  
to said continuous length of tube.

20. A system for producing metal tube from a continuous sheet of metal comprising;  
a forming mill for shaping said continuous sheet of metal into a continuous length  
of metal tube;

a sizing mill for shaping said continuous length of metal tube into a predetermined diameter;

a coating system having a wash and rinse stage for cleaning said continuous length of metal tube, a dryer stage for drying said tube, a coating stage for applying to said continuous length of metal tube a coating capable of being cured by exposure to either an electron beam or ultraviolet light, said coating system further having a plurality of electron beam emitters arranged to provide complete curing of an electron beam curable coating and a plurality of ultraviolet lamps arranged to provide complete curing of an ultraviolet light curable coating; and

a pull-out mill for providing a tensile force on said continuous length of tube through said coating system.

21. A system for producing metal tube from a continuous sheet of metal as claimed in claim 20 wherein said coating system further comprises a sealer stage for applying a sealant to said continuous length of tube.

22. A system for producing metal tube from a continuous sheet of metal comprising; a forming mill for shaping said continuous sheet of metal into a continuous length of metal tube; a sizing mill for shaping said continuous length of metal tube into a predetermined diameter;

a coating system having a wash and rinse stage for cleaning said continuous length

of metal tube, a dryer stage for drying said tube, a coating stage for applying to said continuous length of metal tube a coating capable of being cured by exposure to an electron beam and ultraviolet light, said coating system further having a plurality of electron beam emitters arranged to provide complete curing of an electron beam curable coating and a plurality of ultra violet lamps arranged to provide complete curing of an ultraviolet light curable coating; and

a pull-out mill for providing a tensile force on said continuous length of tube through said coating system.

10 23. A system for producing metal tube from a continuous sheet of metal as claimed in claim 22 wherein said coating system further comprises a sealer stage for applying a sealant to said continuous length of tube.

24. A process for coating tube comprising the steps of:

15 applying a compressive force to a portion of said tube;  
applying an electron-beam curable coating to the portion of said tube under compression; and  
exposing the coated portion of said tube to an electron beam to cure the coating applied thereon.

25. A process for coating tube comprising the steps of:

20 applying a compressive force to a portion of said tube;  
applying an electron-beam curable coating to the portion of said tube under

compression; and

exposing the coated portion of said tube to an electron beam and ultraviolet light

to cure the coating applied thereon.

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